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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,147	03/17/2004	Sethu K. Madhavan	GP-304612 (2760/165)	3953
7590 05/01/2007 General Motors Corporation Legal Staff, Mail Code 482-C23-B21 300 Renaissance Center P.O. Box 300 Detroit, MI 48265-3000			EXAMINER PERILLA, JASON M	
			ART UNIT 2611	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/802,147

Applicant(s)

MADHAVAN ET AL.

Examiner

Jason M. Perilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37-CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1-19 are pending in the instant application.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on October 2, 2006 is in compliance with the provisions of 37 CFR § 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Objections***

3. Claims 3 and 8 are objected to because of the following informalities:

Regarding claim 3, "wherein the predetermined silence period is from" should be replaced by –wherein a duration of the predetermined silence is within the range of”.

Regarding claim 8, "wherein the predetermined" should be replaced by –wherein a duration of the predetermined--.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4-7, 10, 13-16, and 19 are rejected under 35 U.S.C. § 102(e) as being anticipated by Yoon et al (U.S. Pub. No. 2005/0013283; hereafter "Yoon").

Regarding claim 1, Yoon discloses a method of communicating data over a voice channel of a wireless communication system, comprising: receiving (via "system controller"; fig. 3, ref. 120) a first periodic data signal; modulating the first periodic data signal to produce a second periodic data signal, wherein the modulation includes inserting a predetermined silence period at timed intervals into the first periodic data signal to produce the second periodic data signal (fig. 4; ¶ 0037); and communicating (via antenna; fig. 3, ref. 116) the second periodic data signal over the voice channel of the wireless communication system. Yoon discloses, in a PCS phone system (¶ 0022) that may combine "a cellular radiotelephone" (i.e. voice transmission) with "data processing, facsimile, and data communications capabilities", inserting a periodic silence period at equal intervals (fig. 4, refs. 202) into a first periodic (fig. 4, "periodicity") voice/data stream to be transmitted (¶ 0037). Yoon specifies that the counters illustrated in figure 6 are utilized to assert start and stop moments for the insertion of silent periods into a first signal received by a modulating controller (fig. 3, ref. 120) to produce a second signal (output of controller 120) for transmission (via transmitter and antenna; fig. 3, refs. 112 and 116).

Regarding claim 4, Yoon discloses the limitations of claim 1 as applied above. Further, Yoon discloses the use of code division multiple access ("CDMA"; ¶ 0018).

Regarding claim 5, Yoon discloses the limitations of claim 5 as applied above. Further, because the silence period of Yoon is inserted into each reverse channel link (as specified in ¶ 0026), and the R-REQCH channel is the "reverse request" channel, it follows that the second periodic signal is utilized in an initial data link authentication

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process because the "reverse request" channel is used to "authenticate" initial reverse communication.

Regarding claim 6, Yoon discloses the limitations of claim 5 as applied above. Further, Yoon discloses that communicating the second periodic data signal over the voice channel of the wireless communication system comprises: transmitting (fig. 3, refs. 112 and 116) the second periodic data signal (i.e. R-PDCH; ¶ 0026) over the voice channel of the wireless communication system; receiving the second periodic data signal at a transceiver (fig. 2); and receiving a third data signal from the transceiver (i.e. RD-PDCCH; ¶ 0026), wherein the third periodic data signal is a second component of an initial data link authentication process. Yoon discloses that the radio base stations (RBS; fig. 2) each receive "a number of reverse link channels" from the mobile stations (¶ 0026) which include both the second periodic data signal or "reverse packet data channel" R-PDCH and an additional third data signal or "reverse packet data control channel" R-PDCCH. As broadly as claimed, the third data signal is an initial link authentication process signal because it facilitates in the reception or "link authentication" of the packet data channel.

Regarding claim 7, Yoon discloses the limitations of claim 1 as applied above. Further, Yoon discloses the production of control signals via the control counters illustrated in figure 6 (¶ 0037). Additionally, the control signals are applied to the modulator system controller (fig. 3, ref. 120) which responds to them to produce the second periodic signal.

Regarding claim 10, Yoon discloses the limitations of the claim as applied to claim 1 above. Further, Yoon discloses that his invention takes the form of a computer readable medium (fig. 3, ref. 130) including an "application program" to be executed by a microprocessor (fig. 3, ref. 120).

Regarding claim 13, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 4 above.

Regarding claim 14, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 5 above.

Regarding claim 15, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 6 above.

Regarding claim 16, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 7 above.

Regarding claim 19, Yoon discloses the limitations of the claim as applied to claim 1 above.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3, 8, 9, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon.

Regarding claim 3, Yoon discloses the limitations of claim 1 as applied above. Yoon does not specify a definite time duration of the silence periods but simply provides that "the silence parameters specify . . . duration . . . for a silence period" and "[t]he value of the silence parameters may be chosen by the system operators. . . ." (¶ 0028). Further, the claimed use of a silent period duration between 25ms and 1000ms is not disclosed as being required to solve any particular problem or serve any stated purpose in the instant application. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to use a silence period having a duration between 25ms and 1000ms in the method of Yoon, depending upon design considerations, because any of such time periods would serve the purpose or function of inserting the time periods.

Regarding claim 8, Yoon discloses the limitations of claim 1 as applied above. Yoon does not specify a definite time duration of the silence periods as applied to claim 3 above. Further, Yoon does not explicitly disclose that the duration of the periods may be variable. However, because Yoon specifies that "the silence parameters specify . . . duration . . . for a silence period" and "[t]he value of the silence parameters may be chosen by the system operators. . . ." (¶ 0028). It is obvious and apparent that the duration of the silence period may be varied according to the "chosen system parameters".

Regarding claim 9, Yoon discloses the limitations of claim 8 as applied above. Further, Yoon specifies that “the silence parameters specify . . . duration . . . for a silence period” and “[t]he value of the silence parameters may be chosen by the system operators. . . .” (¶ 0028). Additionally, the “silence parameters” are transmitted by the radio base station (RBS) (fig. 2) to the mobile units (fig. 3; ¶ 0028). Because the radio base station receives the second periodic signal having the periodic silence periods inserted from the mobile station, it follows that the RBS may want to tailor the silence parameters after receiving the second periodic data signal. That is, it would have been obvious to one having ordinary skill in the art that, upon receiving the second periodic data signal at the RBS from the mobile station, the RBS may send new “silence parameters” as a “response” back to the mobile terminal. Thereafter, the mobile terminal would vary the predetermined silence period in response to the response from the RBS.

Regarding claim 12, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 3 above.

Regarding claim 17, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 8 above.

Regarding claim 18, Yoon discloses the limitations of claim 17 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 9 above.



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8. Claims 2 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoon in view of Preston et al (U.S. Pat. No. 7151768; hereafter "Preston").

Regarding claim 2, Yoon discloses the limitations of claim 1 as applied above. Yoon further specifies that the PCS transmission is a spread spectrum CDMA transmission (§ 0018) but does not explicitly disclose any particular type of symbol modulation. However, the use of a frequency shift keying (FSK) modulation technique is notoriously known in the art as taught and disclosed by Preston. Preston teaches, in a strictly analogous data over voice channel communication technique (abstract), the use of FSK for modulating digital data upon a voice channel (col.3, lines 60-65). One skilled in the art is aware that FSK modulation is a particularly well known, effective, and adopted technique of modulation. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that Yoon's data could be modulation by FSK as suggested by Preston because FSK modulation is a particularly effective and well known method of modulating data.

Regarding claim 11, Yoon discloses the limitations of claim 10 as applied above. Further, Yoon discloses the remaining limitations of the claim as applied to claim 2 above.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to

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show the state of the art with respect to data over voice channel encoders and protocols.

U.S. Pat. No. 5978756 to Walker et al.

U.S. Pub. No. 2002/0001317 to Herring.

U.S. Pat. No. 6366772 to Arnson.

U.S. Pub. No. 2003/0225574 to Matsuura et al.

U.S. Pub. No. 2004/0220803 to Chui et al.

U.S. Pub. No. 2005/0021332 to Ryu et al.


U.S. Pat. No. 7206305 to Preston et al.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jason M. Perilla  
April 25, 2007

jmp

  
CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER